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Guidance on Demonstrating Conformance to ISO 3664

In the currently available CIE Recommendations on Color Rendering, *CIE 13.3:1995, Methods of measuring and specifying colour rendering properties of light sources*, the document recommends that the reference illuminant have the identical color temperature as the test source. The recommendation then proposes switching from the blackbody locus to daylight locus for creating the reference illuminant at a correlated color temperature of 5000 Kelvin, thus implying that reference illuminants to evaluate sources with correlated color temperature below 5000 K should come from the blackbody locus and for sources with correlated color temperatures of 5000 K or greater the reference illuminant should come from the daylight locus. This is a difficult practice for those attempting to validate a lighting environment under ISO 3664. In the latest version of the CIE recommendation on colorimetry, *CIE 15:201x, Colorimetry*, the proposed text now suggests that 4000 K would be a better color temperature at which to switch from the blackbody locus to the daylight locus for the reference illuminant. In previous edition of *CIE 15:2004*, the recommendation was that the application should dictate the selection of the reference illuminant. For the purpose of ISO 3664, whose application is the simulation of CIE Daylight with a correlated color temperature of 5002 K, it is not reasonable to choose the blackbody reference for a daylight simulator with a correlated color temperature of 4998 K and the daylight reference for a simulator with a correlated color temperature of 5001 K.

It is therefore the guidance of JWG24 that when assessing a D50 simulator for conformance to ISO 3664, the reference illuminant shall always be that of CIE D50, taken from the tables in ISO 3664. It shall not be required that the color temperature of the reference illuminant be an exact match to the test source in this standard. Shifting the reference illuminant from 5002 K down to 4900 K or up to 5100 K is not a within the spirit of the CIE recommendations, where the color rendering could be for any practical source with color temperature from 2000 K to 9000 K. In the case of assessing a 7500 K simulator then using a reference illuminant from the daylight locus is the correct procedure, as it meets the goals of the application while using the blackbody locus to assess a deluxe fluorescent lamp with a CCT of 3500 K is the correct procedure as, again, this meets the goals of the application.